

Application Serial No: 10/637,084
In reply to Office Action of 25 Feb 2005

Attorney Docket No. 83346

REMARKS / ARGUMENTS

Claims 1-10 are currently pending in the application. No claims are allowed. Claims 1-3 are rejected. Claims 4-10 are cancelled without prejudice by this response. Claims 1-3 have been amended by this response.

The Examiner required election between group I, claims 1-3 and group II, claims 4-10. Applicants provisionally elected group I. This provisional election is affirmed. Claims 4-10 have been cancelled by this action and have been filed as a divisional application having Ser. No. 11/076,459.

The Examiner rejected claims 1-3 under 35 U.S.C. § 102(b) as being anticipated by Osada et al. (Reference D: United States Patent No. 6,271,585). The Examiner contended that Osada et al. discloses a heat sink substrate comprising a Cu-Mo composite material composed of a molybdenum green compact having 20-60 wt. % or 22-63 vol. % of copper impregnated therein. The Examiner noted that the molybdenum there is present in the amount of 37-78 vol. %. The Examiner further contended that Osada et al. teaches that copper used in the composite can be oxygen free copper and that the molybdenum powder has an average particle size of 2-6 microns. The Examiner found that in view of this molybdenum concentration and average particle size, the composite material would inherently have the claimed mean free path and mean center to center spacing.

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These rejections and objections are respectfully traversed in view of these amendments and remarks.

Osada et al. appear to teach a heat sink substrate comprises a Cu--Mo composite substrate composed of a molybdenum (Mo) green compact with which Copper (Cu) of 20-60 wt. % is impregnated. It is preferable that the heat sink substrate is a rolled plate obtained by repeatedly warm rolling or cold rolling the Cu--Mo composite substrate and that the rolled plate does not include any fine void and unevenly impregnated copper, that is, copper and molybdenum are uniformly distributed therein.

Applicants have amended claim 1 to highlight distinctions between their material and that taught by Osada et al. In Applicants' invention the molybdenum particles are sintered into a preformed shape while impregnating with copper. This is disclosed in the specification at page 15, lines 6-10. Osada et al. disclose a material that preferentially requires rolling to fully integrate the copper with the molybdenum. This is a completely different use from that taught by the Applicant. Applicants' material is specifically designed for stereolithographic sintering which is used for rapid creation of parts having unusual and intricate shapes. Parts of this nature cannot be made easily from rolled material. In discussing mixed prior art materials, Osada et al. at col. 9, lines 42-50, suggest that these materials can be sintered without rolling to

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avoid anisotropic affects, but this causes cracking and other defects. As such, Osada et al. teach a material that is unsuitable for creation as a formed shape.


Applicants suggest that their invention represents an improvement over the prior art because rolling is not required, and the molybdenum can be provided in a sintered matrix which allows formation of complex parts. Applicants have amended claim 1 to indicate that the molybdenum green form should be made in a formed shape. This distinguishes Applicants' invention from that taught in the prior art. Claims 2 and 3 have been amended to be in conformance with claim 1.

Applicants respectfully request reconsideration and allowance of the application in view of these amendments.

The Examiner is invited to telephone James M. Kasischke, Attorney for Applicants, at 401-832-4736 if, in the opinion of the Examiner, such a telephone call would serve to expedite the prosecution of the subject patent application.

Respectfully submitted,
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